András Gémes

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Summary

Embedded software engineer with 7 years of experience and a strong interest in cybersecurity, with hands-on experience in binary analysis, reverse engineering and malware analysis (e.g., ransomware and botnets). Certified in Sec+, CASP+/SecX, CEH, IMBT and PMAT. Looking to apply my expertise as a reverse engineer, malware analyst or security researcher.

Work experience

Rust Software Engineer *@ HighTec EDV-Systeme GmbH - Budapest, Hungary* **Feb 2023 – Present**

- Implementing Rust and assembly tests for the Rust compiler
- Hardening the Rust toolchain binaries against reverse engineering
- Representing HighTec as a member of the LLVM security group

Embedded Software Engineer *@ Knorr-Bremse - Budapest, Hungary* **May 2018 – Jan 2023**

- Implemented, automated and evaluated static application security testing (SAST)
- Configured and hardened memory and real-time operating system (RTOS) software modules
- Investigated and debugged critical software issues at the assembly level

Skills

Languages: C, Rust, Python 3, Assembly (ARM64/AArch64, AMD64/x86-64), Bash

Reverse engineering (static): Ghidra, IDA, Joern, capa, YARA, DiE, readelf, objdump

Reverse engineering (dynamic): GDB, LLDB, QEMU, strace, eBPF, VirtualBox, Qiling, Frida, x64dbg, Sysinternals

Network analysis and protocols: Wireshark, Suricata, Zeek, FakeNet-NG, INetSim, TCP, UDP, HTTP, HTTPS, DNS

Platforms and DevOps tools: Linux (Fedora, Ubuntu), Windows, Git, Docker, GitHub Actions, Jenkins

Embedded systems and protocols: STM32, ESP32, Wi-Fi, CAN, SPI, UART, I2C

Certifications

CompTIA Security+, CompTIA CASP+/SecurityX, EC-Council CEH, Invoke RE IMBT and TCM Security PMAT

Open source contributions

- ghidra: contributing bug reports and patches to Ghidra, focusing on the BSim, Debugger and FunctionID features
- joern: working on improved binary analysis capabilities through Ghidra integration
- ghidra-scripts: implementing custom Ghidra scripts to support reverse engineering
- rustbininfo: submitting various improvements targeting the compiler version and dependency guesser
- shadow-shell: developing a cyber lab for shellcode analysis, using Assembly and C

Education

MSc in Mechatronics Engineering **Feb 2016 – June 2018**

Budapest University of Technology and Economics - Budapest, Hungary

BSc in Mechatronics Engineering **Sept 2012 – Jan 2016**

University of Pannonia - Veszprém, Hungary

Continuous education

Currently I am actively learning on TryHackMe, reading Blue Fox: Arm Assembly and managing my homelab.